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ENHANCED DLA DISTRIBUTION SYSTEM (EDDS) "POOLING"

DEFENSE LOGISTICS AGENCY

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"Pooling"

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DLA-LO

June 1988

FOREWORD

This report looks at the "pooling" concept as proposed under the Enhanced DLA Distribution System (EDDS). "Pooling" assumes movement of selected freight from a depot in truckload lots to an intermediate EDDS facility for consolidation with freight from other DLA depots. The resulting larger less-than-truckload shipments are then transported from the EDDS facility short distances to the ultimate consignee.

The study compares current transportation methods and costs to the "pooling" alternative and estimated savings are computed. Savings under "pooling" in second destination transportation expenditures are estimated to be $16.9 million yearly. In addition, a depot weight/line analysis was conducted and initial traffic studies were developed for the proposed commercial EDDS facilities at New York, NY and Los Angeles, CA.

Several conclusions are discussed and a recommendation is made to implement the "pooling" phase of the EDDS program.

ROGER C. ROY
Assistant Director
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EXECUTIVE SUMMARY

The Defense Logistics Agency's Directorate of Supply Operations, Transportation Division (DLA-OT), requested an analysis of the proposed "pooling" concept to be implemented as part of the Enhanced DLA Distribution System (EDDS). The analysis covers three areas: depot workload impact, initial EDDS facility traffic studies for New York and Los Angeles, and a comprehensive cost analysis.

Under the EDDS concept a balanced approach is envisioned. "Pooling" being the second destination transportation from the DLA depots, while "consolidation" is first destination transportation from vendors to the depots. In February 1987, a study of "consolidation" under the EDDS concept was completed. The study recommended that eleven EDDS sites be established, five commercial and six at the DLA depots. Savings were estimated to be approximately $14 million yearly.

"Pooling" simply means that small shipments generated by a depot and destined to a specifically defined area will be shipped together in a truckload lot to the EDDS facility assigned to the area. Once the shipments arrive, they will be combined with like shipments from the other five DLA depots and shipped in short-distance less-than-truckload lots to the ultimate customer. Savings are expected to be the difference in the cost of shipping a large number of small, high cost, long-haul less-than-truckload shipments versus transporting those same shipments in truckload lots at a reduced cost to the EDDS facility and then "pooling" them with other depots' freight for final delivery to the customer.

A cost analysis was performed by comparing the current method of shipping EDDS eligible freight to the "pooling" alternative. Shipment data were developed from the Mechanization of Warehousing and Shipment Processing (MOWASP) history file for Fiscal Year 1987. Both commercial and government tender rates were used to approximate costs, with the commercial rates adjusted to closely parallel the rates currently paid by DLA. The "pooling" alternative was found to save about $16.9 million yearly or 40 percent of the second destination transportation dollars currently spent on the movement of small freight from the depots. The estimated present value savings under "pooling," given a 12-year program life, are $110.5 million. This is based on the DoD approved discount rate of 10 percent. The estimated total costs for EDDS software development, depot modernization, and a management support activity were considered in the analysis. This estimate included costs to implement and operate facilities to handle both "consolidation" and "pooling."

In addition, a weight/line analysis was conducted to determine the workload impact at each of the DLA depots and initial traffic studies were completed for the proposed EDDS sites in New York, NY, and Los Angeles, CA. The weight/line analysis gives a breakdown by origin depot and destination EDDS site of the total number of lines and weight shipped by the depots. The traffic studies give an approximation of the number of shipments by weight category flowing through the EDDS sites and will be used in the initial solicitations for transportation agreements at the EDDS facilities.

Overall, the "pooling" concept is viable and recommended. Benefits, in addition to the monetary savings of the "pooling" concept, include elimination of the cross-hauling involved in shipping a large number of small less-than-truckload shipments long distances, simplification of documentation at the depots, enhanced capability to level depot workload, larger quantity deliveries to the ultimate customer, and the opportunity for negotiation of transportation rates. Problems include system program changes, initial start-up confusion, lack of experience in "pooling," and the need for freight terminal modernization at the depots.

I. INTRODUCTION

The Defense Logistics Agency's Directorate of Supply Operations, Transportation Division (DLA-OT), requested an analysis of the proposed pool delivery concept to be implemented as part of the Enhanced DLA Distribution System (EDDS). The analysis covers three areas: depot workload impact, guaranteed traffic histories (for New York, NY, and Los Angeles, CA), and the pool distribution cost analysis. This project is a companion to the original EDDS study covering inbound vendor shipments to the DLA depots dated February 1987. As in the first study, this analysis looks at the potential transportation cost savings under the EDDS concept and does not address related management issues similar to those discussed below.

A. Background

In the EDDS study completed in February 1987, inbound vendor traffic from CONUS locations to DLA depots was evaluated to determine potential savings through the use of consolidation at or near the shipment origin. The analysis revealed that approximately $14 million could be saved annually in transportation costs while providing DLA with the same level of service. Several advantages to the EDDS concept were noted including increased item visibility, lower overall costs, and the ability to expedite high-priority items as they pass through the consolidation point. In addition, several potential problems were noted including implementation time lag, hold-time at the consolidation sites, compatibility of processing equipment, and the handling of loss and damage claims relating to consolidated freight.

In addition to the vendor inbound study, a site selection analysis was conducted to determine the best number and location of sites required to produce the maximum savings for DLA. A heuristic algorithm was developed which used weighted-miles as a proxy for cost to select potential locations for the EDDS sites. Once selected, the sites were run through a cost model to determine estimated savings. A heuristic approach was taken because of the limited number of locations that could support an EDDS site and to allow for changes to the near-optimal solution based on the management decision-making process.

Subsequent to the February 1987 study, a numbe of issues were raised by the various functional areas affected by the EDDS program. The most serious questions were raised by the Directorate of Contracting (DLA-P). DLA-P's concerns include bid evaluations to determine low offerors; enforcement of warranty rights; point of acceptance, receipt and notification of payments; and handling and processing at the EDDS sites. Each of these items are management issues which must be resolved at the Primary Staff Element (PSE) level. To accomplish this, DLA-OT established the EDDS Support Office (EDDSSO). The EDDSSO is responsible for planning, implementation, and operation of the EDDS. Implementation of the EDDS program is scheduled for late 1988 and will begin with the commercial sites at New York, NY, and Los Angeles, CA. Any problems during start-up will be identified and resolved by the EDDSSO prior to system-wide implementation.

Since EDDS is a two-way concept, DLA can maximize the potential savings by utilizing each EDDS site for both depot inbound and depot outbound shipments. This study examines the depot outbound shipments to DLA CONUS customers through a concept we will call "pooling." Pooling simply means that small shipments (those less than 10,000 pounds) generated by a depot destined to a specifically defined area will be shipped together in a truckload lot to the EDDS facility assigned to the area. Once the shipments arrive, they will be combined with like shipments from the other five DLA depots and shipped in short-distance less-than-truckload (LTL) shipments to the ultimate customer. The savings being the difference in the cost of shipping a large number of small high cost long-haul LTL shipments versus transporting these same shipments in truckload lots at a reduced cost to the EDDS site and pooling them with other depots' shipments for final delivery to the customer in larger short-haul LTL lots. Through the use of pooling for depot outbound shipments and consolidation for depot inbound shipments, each EDDS site has the potential to balance its throughput operation, a concept that is both efficient and lowers cost. Figures 1a through 1c illustrate both concepts individually as well as combined under the balanced concept.

B. Purpose. The purpose of the study is to provide management with information about the depot pooling segment of the EDDS system along with the related cost savings involved. The information is developed from existing depot shipment history files using computer modeling techniques.

C. Objectives. The objective of the study is to develop information needed by management to implement the pool distribution segment of the EDDS program. The analysis covers three distinct areas: depot workload impact, which is the potential weight and line impact expected at each of the DLA depots; guaranteed traffic histories, which create guaranteed traffic histories to be used in the initial contracting for the operation of and transportation at the EDDS sites located in New York, NY, and Los Angeles, CA; and pool distribution cost analysis, which estimates the potential savings under the pooling concept.

II. CONCLUSIONS

Looking at the outbound DLA depot delivery system "pooling" makes sense. It eliminates cross-hauling of small LTL shipments moving long distances from the DLA depots to their customers. The use of truckload carriers to transport large quantities of small shipments from a depot simplifies loading and documentation requirements at the depots and allows the transportation officer to use much lower truckload rates to the EDDS site. Larger shipments will result at the EDDS sites which will move under lower rates because of the higher "pooled" weight. This will result in fewer deliveries of larger quantities to the ultimate customer. An approximate overall savings of 40 percent over the current method of shipping EDDS eligible freight is anticipated. In addition, the EDDS concept opens up the opportunity for negotiation of more guaranteed traffic rate packages, adding to the savings already achieved under that valuable program.

Increased free-flow of Materiel Release Orders through a depot will require less banking since the final shipment to the ultimate customer will be built

Figure 1.a. INBOUND DEPOT TRAFFIC FLOWS

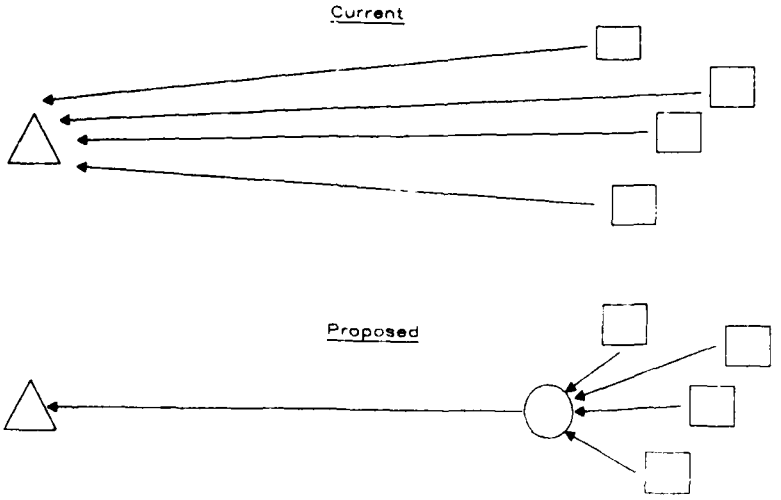


Figure 1.b. OUTBOUND DEPOT TRAFFIC FLOWS

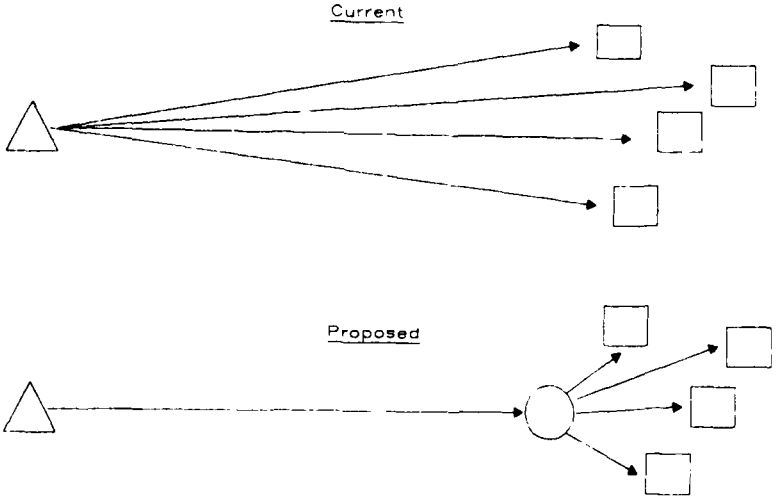
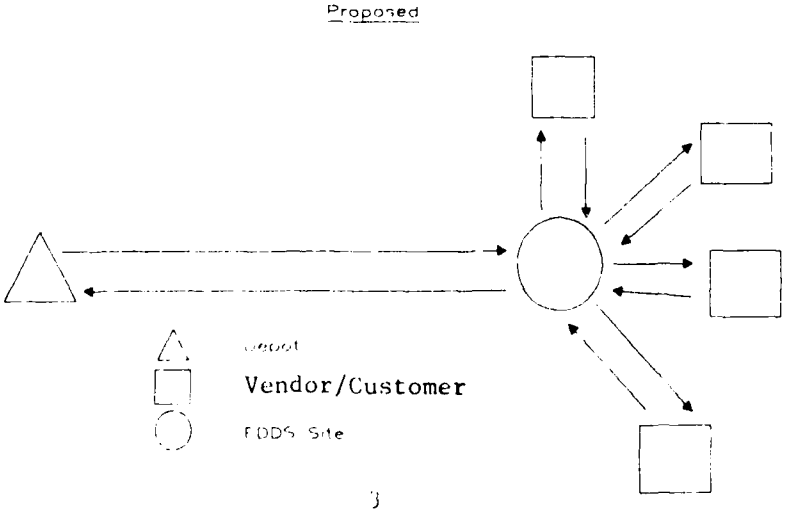


Figure 1.c TWO-WAY DEPOT TRAFFIC FLOW



and the bill prepared at the appropriate EDDS site. This free-flow of MROs will give depots the enhanced capability to level the workload process.

However, there are some obvious problems with the "pooling" concept. Computer program changes to depot systems will be necessary to select EDDS eligible MROs. This may be time consuming and expensive. Experience in the "pooling" process must be gained by both the depot shippers and EDDS site operators (both private and government owned facilities). Initial start-up at the EDDS sites may be confusing and could result in misrouted and lost freight. Freight terminals at the depots will need to be redesigned to accommodate the new EDDS mission.

A. Benefits

Given a twelve year project life, as explained below, "pooling" would save approximately $110.5 million over the life of the project. This is based on a present value analysis using the standard DoD approved 10 percent mid-year discount figures. This assumes that implementation begins with commercial sites on 1 January 1989. Depot sites are phased in over a 2-year period with five depots beginning operation in 1990 and the sixth depot coming on-line in 1991. A 12-year project life allows for full operation of the EDDS "pooling" segment for a 10-year period. Appendix C provides the detailed present value analysis.

III. RECOMMENDATIONS

Implement "pooling" of eligible DLA depot freight shipments as soon as practical. Implementation should proceed slowly and be well coordinated, with all affected PSEs involved in the process.

Small parcels (between 1 and 66 pounds) should be phased into the EDDS process only after experience has been gained in handling freight shipments. Consideration should be given to handling these small parcels in tri-wall containers only, in order to avoid individual processing of a large number of small parcels.

IV. STUDY APPROACH

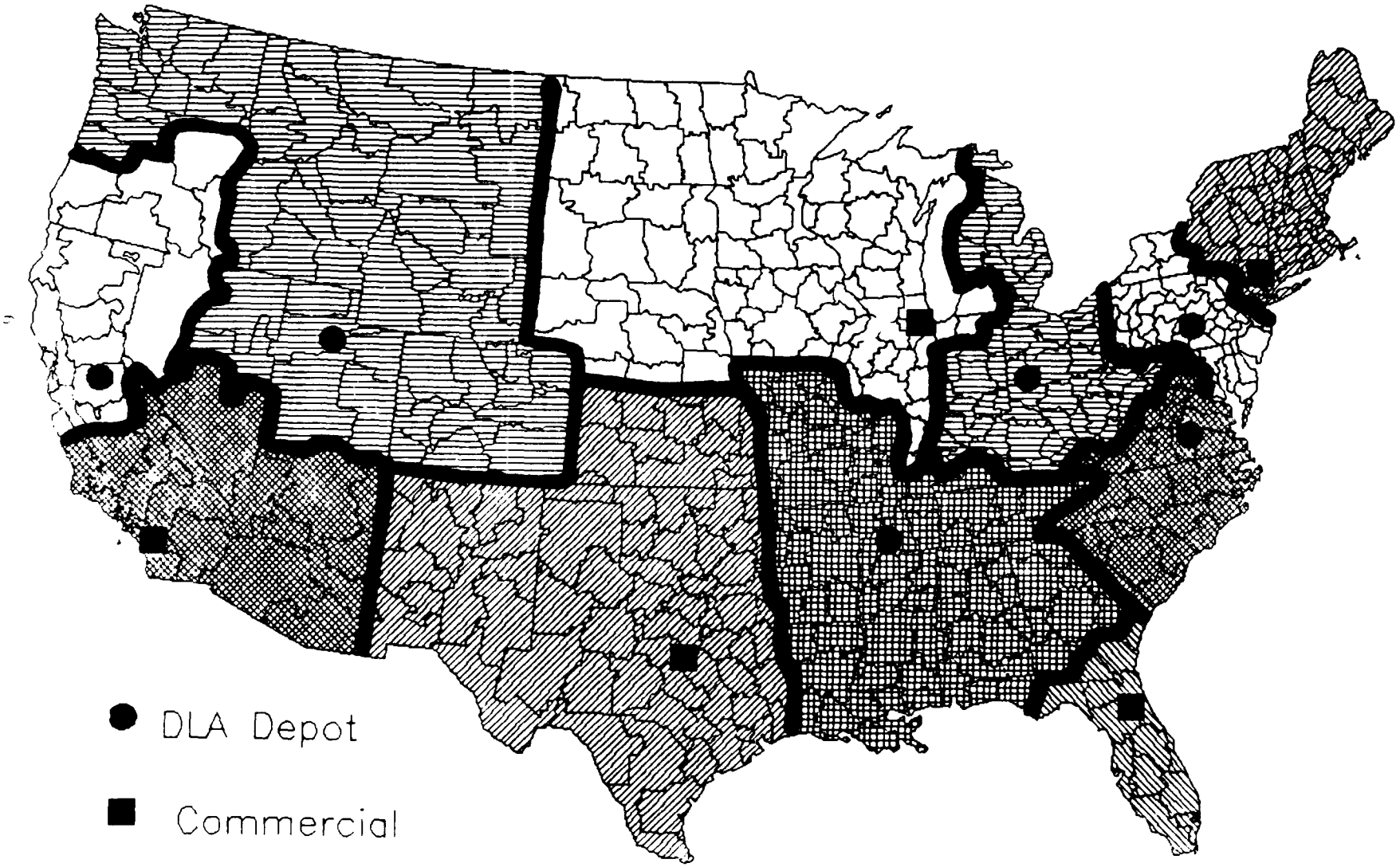
The EDDS concept for both inbound and outbound depot traffic is based on a change in traffic flow for potential LTL shipments. To study the effect of these changes, a comparison must be made between a baseline scenario (what is currently happening in the transportation system) versus a new scenario that closely resembles the flow of traffic under the EDDS concept. In order to accurately measure the resulting changes, the same data must be used throughout the study with the different levels of consolidation simulated by a computer model.

To understand the "pooling" concept we must first understand the two scenarios discussed above. Under the baseline scenario, which is the status quo at DLA depots today, low priority shipments to customers are built in the computer by the Mechanization of Warehousing and Shipment Processing (MOWASP) system. Consolidation is based on three main factors, the number of days MROs can be

banked in the computer, compatibility of the items consolidated, and the Destination Cross-Reference code (DCR) or shipping address of the customer. As a requisition is received in the MOWASP system, the MRO is assigned a shipping unit number with the first MRO to a unique DCR being assigned a shipping unit line number of 00001. As subsequent MROs to the same DCR are received, they are given the same shipping unit number and the next available sequential line number. When the oldest MRO in the shipping unit reaches maturity (attains the maximum number of days allowed in the bank) the MROs are dropped from the bank and sent to the warehouse or bin area to be picked and packed for shipping to the final destination. After the shipping units are picked and sent to packing they are assigned a Transportation Control Number (TCN) which usually consists of all the shipping unit lines picked in the same area. Shipments are then built in the freight terminal as the transportation units arrive and are loaded on the truck for movement to the customer. A government bill of lading (GBL), which is the highest level shipping document, is produced covering all transportation units going to a single customer (DCR) once the truck is loaded. Each GBL is considered to be a shipment and is the document used as the basis for all rate computations. A trailer, once loaded, will contain a number of small LTL shipments. There is an exception to this process. If the aggregate weight of a shipping unit is 15 pounds or less it is not consolidated into a larger freight shipment, but is shipped by small parcel carrier. If a shipping unit weight exceeds 15 pounds, it is sent to the freight terminal for further consolidation. If it is later found that the total weight going to a particular customer does not exceed 66 pounds, the shipment is sent via small parcel carrier rather than freight carrier.

The "pooling" scenario represents a radical change in the flow of small shipments out of the DLA depots. There are four basic elements to the process: free-flow of the small shipping units onto an outbound trailer, movement of the trailer to the EDDS site, pooling of all depots' freight into large LTL shipments at the EDDS site, and delivery of short-haul LTL shipments to the ultimate customer. The major impact to the current system will be in the way shipping units are moved out of the depots. A determination as to whether an MRO is EDDS eligible must be made as the MRO is processed. MROs that are "Not Mission Capable Supply" (NMCS), Foreign Military Sales (FMS), Issue Priority Groups (IPG) 1 and 2 (except IPG 2 requisitions with a "Hold Code" = "D" (downgraded)), MROs to overseas customers, MROs with a ship weight over 10,000 pounds, MROs eligible for dedicated truck service, certain hazardous materials, and selected transportation modes are not eligible for EDDS and must continue to be processed as they are today. As MROs are determined to be EDDS eligible they must be assigned to one of the 11 EDDS sites and loaded on the trailer destined to that site. Each EDDS site serves a predefined geographic area with the site assignment based on the location of the customer. For instance, if an MRO is assigned to Nashville, TN, the MRO is loaded on the trailer destined to the EDDS site serving Nashville, in this case, Memphis, TN. Figure 2 shows each of the 11 EDDS sites along with their service areas. As each trailer is loaded, a master GBL will be initiated along with a manifest covering all of the freight onboard. This GBL will cover the truckload movement from the originating depot to the assigned EDDS site. Pooling of the six DLA depots' freight will occur at the EDDS site and a GBL will be cut for each shipment built at the site. Rates are then based on the shorter movement from the EDDS site to final destination. A flat rate per hundred weight is assessed at the EDDS site for the pooling function.

Figure 2. EDDS SITES WITH SERVICE AREAS



A. Methodology

The major thrust of this study was the "pooling" cost analysis. In order to determine the estimated savings under the pooling concept, both of the above scenarios were modeled and comparisons made. To model the scenarios, the best approach was determined to be to start with the lowest level requisition (single line MRO), then consolidate using various computer programs to simulate the flow of shipments out of the depots, beginning with the depot to customer scenario. The depot to customer scenario then became the baseline for the remainder of the analysis.

Working from the data base prepared for the baseline scenario, each step in the "pooling" concept was generated by computer program and saved to a separate file. The file from each step was then run through a unique program which extracted and compiled the desired information. The results from each step were then combined in a spreadsheet to facilitate presentation of both scenarios including all pertinent data for comparison. Figure 3 is a high-level flow chart of the analysis process showing the files and hard-copy reports created. A total of 47 tape files and 34 reports were generated. The depot workload impact and site guaranteed traffic histories for New York, NY, and Los Angeles, CA, were generated at steps 6 and 11, respectively.

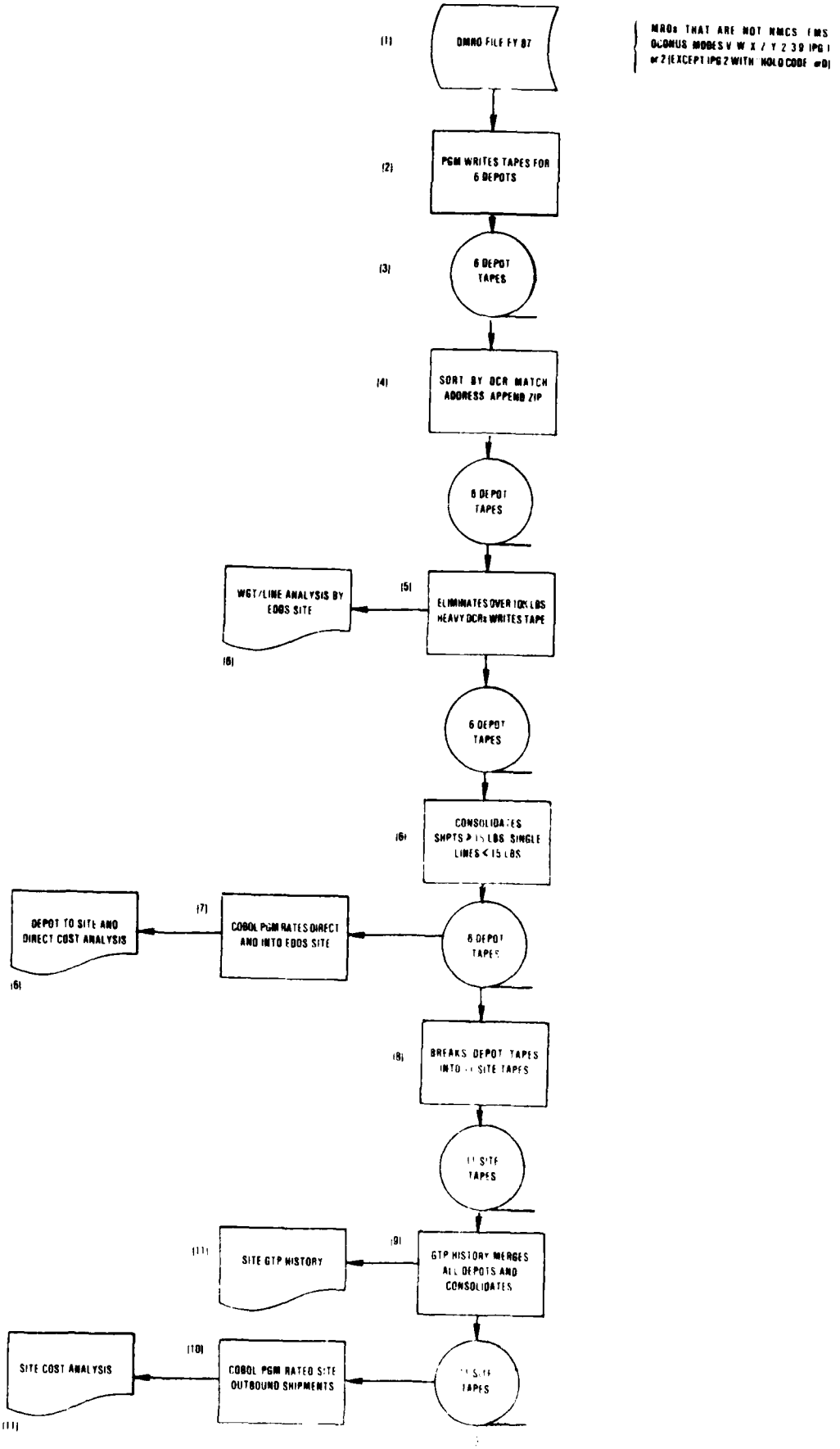
B. Data Preparation

Since it was important that the same data be used throughout the analysis, a single data base was constructed from the MOWASP History file for Fiscal Year 1987. The data base contained selected information from closed MRO transactions processed at each of the DLA depots. Certain MRO transactions were excluded from the data base so that only those transactions eligible for the EDDS program were retained. MRO records meeting the following criteria were eliminated:

1. Not Mission Capable Supply (NMCS) requisitions.
2. Foreign Military Sales (FMS) requisitions.
3. All non-CONUS requisitions.
4. Requisitions shipped via modes V, W, X, Z, Y, 2, 3, and 9.
5. All IPG 1 and 2 requisitions except IPG 2 requisitions with Hold Code "D" (downgraded).
6. All requisitions with a ship weight over 9,999 pounds.
7. Any point where the aggregate weight of MROs to one DCR in any one day exceeded 10,000 or more pounds.
8. Destinations averaging receipt of 25,000 pounds or more per week. These points are candidates for dedicated truck service. See Appendix A for a list by depot of the heavy destination points.

Once the MRO data base was established, the MOWASP Address File was used to append a sectional zip code for the origin and destination to each record. This allowed us to use the three-digit zip code for developing geographic and transportation rate information.

FIGURE 3. HIGH-LEVEL FLOW CHART OF ANALYSIS PROCESS

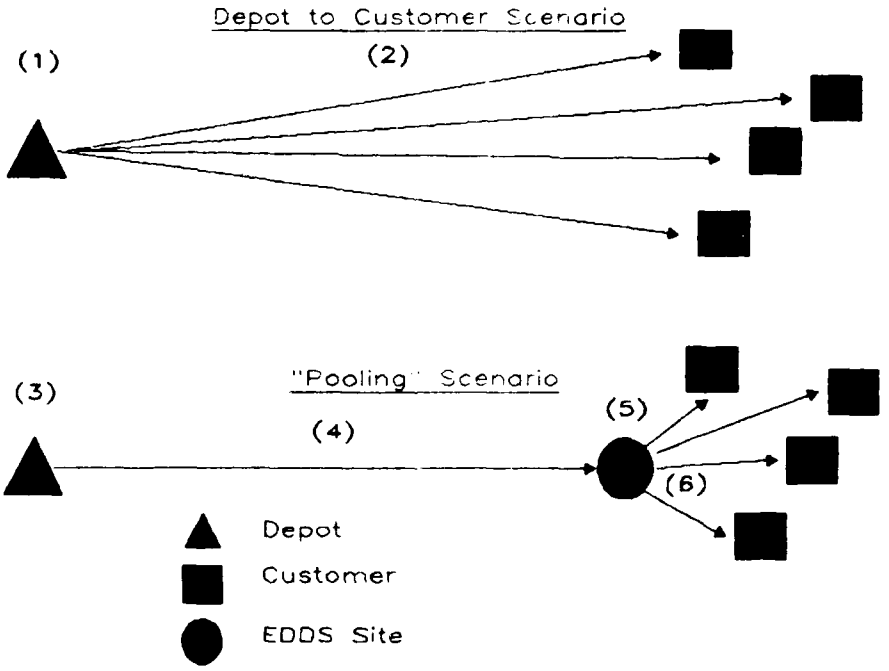


V. ANALYSIS

Working from the above data base, the depot to customer and "pooling" scenarios were modeled and costed using both contract rates and a commercial rate data base purchased and maintained by the DLA Operations Research and Economic Analysis Management Support Office (DORO). Commercial rates were based on 3-digit to 3-digit sectional zip codes and were computed at a level which closely resembled current rates paid by DLA for LTL traffic. Minimum charges were based on 90 percent of the actual minimums. Truckload rates were based on current Guaranteed Traffic Agreements in effect for movement of shipments between the DLA depots and the EDDS site locations. Adjusted commercial rates were used for TL shipments from the EDDS sites to the ultimate customers. All rates used were current as of October 1987. These levels of rates were used since they closely approximate the rates currently paid by DLA for second destination transportation.

Figure 4, which is an expanded version of Figure 1b, depicts the outbound depot traffic flows for both the "depot to customer" and "pooling" scenarios.

Figure 4. OUTBOUND DEPOT TRAFFIC FLOWS



A. Depot to Customer Scenario

The "depot to customer" scenario represents the current method of small shipment transportation out of the DLA depots. The two basic steps involved are building shipments to the customer at the depot and transportation by commercial carrier from the depot to the ultimate customer. In order to simulate the building of shipments at each depot, the original data base was broken down by depot and then processed. The breakout process resulted in six individual depot files with each file containing those single line MROs eligible for "pooling" prior to consolidation into shipments.

Depot consolidation (Figure 4(1)) was then accomplished using two criteria: lines with a ship weight of 15 pounds or less were single-lined with no further consolidation accomplished; and lines with a ship weight greater than 15 pounds with the same ship date to the same DCR (customer) were consolidated into larger shipping units. These data were then stored to a file that contained all small shipments (less than 10,000 pounds) eligible for "pooling" at each depot that would have been shipped to the customer on a direct basis via commercial common carrier.

Once the file was created, it was run through a program to compute the estimated transportation cost per shipment and obtain totals for shipment count, shipping weight, and total estimated shipping cost for parcel post and LTL. Estimated shipping costs were based on the best available small parcel rate for those shipments under 70 pounds and the DORO commercial rate data base for shipments greater than 70 pounds. Figure 4(2) illustrates this direct movement from the DLA depot to the ultimate customer. Figure 5(1) shows examples of the computations for direct movement from the depot to the ultimate customer. The results from the rating program were then loaded into a spreadsheet and used as a baseline for comparison to the "pooling" scenario.

B. "Pooling" Scenario

"Pooling" consists of four basic steps as shown in Figure 4(3) through Figure 4(6). The first step (Figure 4(3)) involves flowing depot processed MROs onto a trailer for movement in truckload lots to the EDDS site serving the customer destination (see Figure 2 for site service areas). The second step (Figure 4(4)) is the actual commercial transportation to the assigned EDDS site. These steps were costed using the rating program in paragraph V.(A) above. Figure 5(3) shows an example of the resulting output. Truckload costs were based on a maximum trailer weight of 30,000 pounds with rates between the depot and the EDDS sites based on the applicable guaranteed traffic rates currently in effect for truckload traffic. Since the truckload cost is based on a 30,000 pound maximum shipment size, the estimated cost to ship a single or multi-line shipment can be estimated using the following equation:

$$\frac{\text{shipment weight}}{30{,}000 \text{ pounds}} \times \text{Guaranteed Traffic truckload cost}$$

This computation prorates the cost of each shipment based on a full truckload. After these computations were completed they were entered into a spreadsheet for comparison purposes.

Figure 5. RATING PROGRAM OUTPUT EXAMPLE

SHIPPING DEPOT: TRACY

	SHIPMENT COUNT	SHIPPING COSTS	SHIPPING WEIGHTS
DISTRIBUTION POINT: NEW YORK, NY (100)			
LTL	1,578	56,784.92	724,498
PARCEL POST	14,132	8,608.93	110,913
POINT TOTAL	15,710	65,393.85	835,411
DIRECT TTL	15,710	288,030.19	835,411
DISTRIBUTION POINT: MECHANICSBURGPA (170)			
LTL	2,195	107,233.42	1,457,065
PARCEL POST	16,605	8,911.71	122,034
POINT TOTAL	18,800	116,145.13	1,579,099
DIRECT TTL	18,800	449,972.09	1,579,099
DISTRIBUTION POINT: RICHMOND, VA (232)			
LTL	3,375	215,930.69	2,831,994
PARCEL POST	25,055	11,872.57	157,464
POINT TOTAL	28,430	227,803.26	2,989,458
DIRECT TTL	28,430	784,381.56	2,989,458
DISTRIBUTION POINT: JACKSONVILLE,FL (322)			
LTL	1,495	57,380.27	1,038,800
PARCEL POST	13,636	4,596.37	84,318
POINT TOTAL	15,131	61,976.64	1,123,118
DIRECT TTL	15,131	324,769.58	1,123,118
DISTRIBUTION POINT: MEMPHIS, TN (391)			
LTL	4,200	147,119.12	2,663,443
PARCEL POST	35,285	13,039.58	238,897
POINT TOTAL	39,485	160,159.70	2,902,340
DIRECT TTL	39,485	768,771.03	2,902,340
DISTRIBUTION POINT: COLUMBUS, OH (432)			
LTL	1,211	39,215.85	591,983
PARCEL POST	12,811	5,784.65	88,339
POINT TOTAL	14,022	45,000.50	680,322
DIRECT TTL	14,022	206,870.83	680,322

(3) Totals for "pooling" TL step.

(2) Weight and shipment tallies for both scenarios.

(1) Direct cost estimates for "depot to customer" scenario.

Processing at the individual EDDS site was somewhat more complex. This is the point (Figure 4(5)) where "pooling" actually takes place. To accomplish "pooling," the EDDS site takes the truckload shipments inbound from the six DLA depots and combines those shipments destined to a single customer into a large LTL shipment for final delivery. At this point a GBL is issued and rates are based on the movement from the EDDS site to the ultimate customer. To model this process, the shipment files representing the freight out of the depots were separated by EDDS site based on the geographic areas shown in Figure 2. During this process an estimated transit time between the depot and EDDS site was appended to the file. This transit time was later used to model the consolidation process. Table 1 shows the estimated transit times used in the analysis[1]. The resulting file contained shipments from the 6 depots to each of the 11 EDDS sites prior to final consolidation.

Table 1. Transit Time Matrix by Sectional Zip Code

Site / Depot	100	170	232	322	381	432	752	600	844	900	953
170	01	01	01	02	03	01	04	02	05	06	07
232	01	01	01	02	02	01	03	02	05	06	07
381	03	03	02	02	01	02	01	02	04	04	05
432	02	01	01	02	02	01	03	01	04	05	06
844	05	05	05	05	04	04	03	03	01	02	02
953	07	07	07	06	05	06	04	05	02	01	01

The final consolidation or "pooling" at each EDDS site was accomplished by computer model using the following steps:

1. As each shipment entered the model, the transit time was added to the date field to estimate the date of arrival at the EDDS site.

2. Shipments were then grouped by the new date and held for three days at the EDDS site. This three day period was designed to allow for maximum shipment size, document preparation, and tender to the destination carrier.

3. Shipments were built by aggregating by customer and date. This information was then written to a consolidated shipment file for each EDDS site.

Rating of the consolidated shipments (Figure 4(6)) was completed using a rating program that used both small parcel and commercial common carrier rates. A sample of the resulting output from the rating program is shown in Figure 6. The results were then loaded into a spreadsheet for comparison purposes.

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[1]Estimated transit times were assigned based on 450 miles travel time per day for truckload traffic. For example, a movement of 850 miles was assigned two 2 days travel time.

Figure 6. EDDS Site Outbound Rate Estimation Output

EDDS CONS POINT: NEW YORK, NY (100)

NUMBER LTL SHPTS:	11,744
NUMBER LTL LINES:	371,146
TOTAL LTL WEIGHT:	18,059,059
TOTAL LTL COST :	1,101,482.50
NUMBER P/P SHPTS:	16,796
NUMBER P/P LINES:	54,422
TOTAL P/P WEIGHT:	241,306
TOTAL P/P COST :	33,574.83
TOTAL SHIPMENTS :	28,540
TOTAL LINES :	425,568
TOTAL WEIGHT :	18,300,365
TOTAL COST :	1,140,057.33

Costs were incurred under the "pooling" scenario at three points, the truckload movement from the depot to the EDDS site (Figure 4(4)), at the EDDS site where consolidation occurred (Figure 4(5)), and on the delivery to the ultimate customer from the EDDS site (Figure 4(6)).

C. Cost Comparison

A Lotus 123 spreadsheet was designed to compare the results of the cost computations from both scenarios. There are two parts to the output display, the detail for each EDDS site (Figure 7), and the overall system summary (Figure 8). The detail report is broken down by cost as it would accumulate during the actual movement of freight from the depots under the two scenarios. Allocation of cost to each EDDS site is based on the ultimate destination of the customer. For example, if a customer is located in the geographic area served by the New York, NY, EDDS site, the direct costs are computed and allocated to the New York EDDS site. Costs associated with "pooling" of that same shipment are also allocated to the New York EDDS site. This allowed us to associate the costs of both scenarios for comparison purposes.

The section labeled "DIRECT DELIVERY COST ESTIMATE" in the detail report (Figure 7) shows the costs related to the first scenario (status quo). Costs related to the "pooling" scenario are detailed in the section labeled "POOLING COSTS." This section is broken down into three areas, "INBOUND COST ESTIMATE," "POOLING COST ESTIMATE," and "OUTBOUND COST ESTIMATE." These areas relate to the costs of "pooling" as they would occur under the "pooling" scenario. The inbound costs are the truckload costs associated with the movement of the freight in truckload lots from the six DLA depots to the named EDDS site. Inbound costs are based on the truckload cost formula given in paragraph V.B above. Pooling costs are estimated based on the total weight of the freight moving through the EDDS site. Handling and document preparation are

Figure 7. EDDS SITE DETAIL ANALYSIS

EDDS POINT: New York, NY

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	7,487,215	835,411	1,754,991	2,608,487	4,947,401	667,106	18,300,611
Total Shpts	172,364	15,710	73,799	64,719	79,580	19,423	425,595
Total Cost	$961,565	$288,030	$369,994	$593,531	$661,376	$205,079	$3,079,575
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	7,487,215	835,411	1,754,991	2,608,487	4,947,401	667,106	18,300,611
Total Shpts	172,364	15,710	73,799	64,719	79,580	19,423	425,595
Total Cost	$79,331	$65,393	$46,060	$84,546	$69,248	$41,115	$385,693
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$101,077	$11,278	$23,692	$35,215	$66,790	$9,006	$247,058
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight	18,300,611						
Total Shpts	28,540						
Total Cost	$1,140,057						$1,140,057
TOTAL POOLING COST ESTIMATE							$1,772,808

****

COST ANALYSIS

COST DIFFERENCE		
Direct - Consolidation	$1,306,767	() - Loss

Figure 8. OVERALL SYSTEM SUMMARY

TOTAL CONSOLIDATION SYSTEM COST ANALYSIS

	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
**********							
TOTAL DIRECT DELIVERY COST ESTIMATE							
**********							
Total Wgt	47,899,634	41,550,994	22,289,989	71,409,562	40,250,814	35,146,749	258,547,742
Total Shpts	870,095	738,711	806,115	1,419,564	755,751	806,670	5,396,906
Total Cost	$7,219,940	$7,059,263	$4,399,538	$11,117,018	$5,862,807	$6,081,224	$41,739,790
**********							
POOLING COSTS							
**********	FACTOR		WEIGHT	SHIPMENT COUNT	COST VIA POOLING	DIRECT COST	DIRECT COST - POOLING COST
New York, NY	1.35		18,300,611	425,595	$1,772,808	$3,079,575	$1,306,767
Mechanicsburg, PA	1.35		26,341,909	543,532	$2,221,472	$3,653,732	$1,432,260
Richmond, VA	1.35		32,438,379	574,236	$2,462,862	$4,478,522	$2,015,660
Memphis, TN	1.35		39,560,500	808,158	$3,808,609	$5,970,348	$2,162,339
Columbus, OH	1.35		14,688,575	386,298	$1,345,964	$2,335,801	$989,837
Dallas, TX	1.35		30,249,569	645,944	$3,097,215	$5,465,682	$2,368,467
Chicago, IL	1.35		16,300,274	382,616	$1,996,833	$3,070,281	$1,073,448
Ogden, UT	1.35		19,715,965	405,212	$2,545,453	$3,678,761	$1,133,308
Los Angeles, CA	1.35		32,337,854	622,253	$2,715,027	$5,231,686	$2,516,659
Tracy, CA	1.35		16,084,138	339,405	$1,986,764	$2,561,967	$575,203
Jacksonville, FL	1.35		12,529,968	263,657	$851,596	$2,213,435	$1,361,839
TOTAL			258,547,742	5,396,906	$24,804,002	$41,739,790	$16,935,788

********** TOTAL SAVINGS **********

Direct - Pooled $16,935,788

****

the major functions occurring at the site and are estimated to be approximately $1.35 per cwt[2]. Outbound costs are the costs associated with the movement of the pooled shipments from the EDDS site to the ultimate customer. An analysis of the costs associated with both scenarios is shown at the bottom of the detail analysis. This number is based on the difference in the cost to ship depot freight direct versus the cost to "pool" the freight. A positive number reflects a savings to DLA in transportation costs through "pooling," while a negative number () represents a loss. Detail reports for the 11 EDDS sites are shown in appendix B.

The "TOTAL SYSTEM COST ANALYSIS" (Figure 8) gives a system-wide summary of the cost, weight, and shipment count for each scenario along with a comparison of the costs of both scenarios. The analysis revealed that DLA can save an estimated $16.9 million annually in transportation costs through "pooling." This reflects some 258 million pounds of outbound depot freight representing approximately 5.3 million shipments weighing between 1 and 9,999 pounds. Savings are based on an estimated direct cost of $41.7 million and an estimated "pooled" cost of $24.8 million. Savings accrue at each EDDS site; however, the savings range from a low of $575,203 at Tracy, CA, to a high of $2,516,659 at the Los Angeles, CA, site. Throughput volumes also vary greatly, from a low of 12.5 million pounds at Jacksonville, FL, to a high of 39.5 million pounds at Memphis, TN. These large variances appear to be directly related to the concentration of customers within each EDDS site area.

D. Weight-Line Analysis. The weight-line analysis is designed to show estimated throughput at each of the eleven EDDS sites. Estimates were developed from the EDDS eligible data base created in II.B. above and are shown in Figure 9. Columns represent the six DLA depots while rows indicate the EDDS sites. A cell in the matrix shows the estimated total number of lines or weight from a particular depot to a named EDDS site and are based on geographic area (see Figure 2). System totals are shown in the right hand column.

E. Guaranteed Traffic Histories. Guaranteed traffic histories were developed for the New York, NY, and Los Angeles, CA, EDDS sites covering "pooled" shipments from the sites to the ultimate customer. The histories are broken down into three parts: a regional map, overall regional summary, and sectional zip code detail (see Figures 10 through 12). Figure 10, the regional map, shows the ultimate customer weight distribution by three-digit sectional zip code. Zip codes are hashed to highlight the appropriate weight category. The overall regional summary, Figure 11, gives a breakdown by mode (LTL and TL) and shows the number of shipments, total weight, number of lines, and average shipment size for each weight group within the mode. Finally, Figure 12 depicts the zip code detail. It is similar to the overall summary but gives the statistics by individual zip code. All zip codes within the EDDS site region are reported.

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[2] A $1.35 per cwt cost factor is based on commercial industry estimates for consolidation of both loose and palletized shipments.

Figure 9. DEPOT WEIGHT/LINE ANALYSIS

DEPOT OUTBOUND WEIGHT/LINE ANALYSIS - EDDS "ELIGIBLE" LINES
FOR FISCAL YEAR 1987

EDDS Site	MECHANICSBURG, PA		TRACY, CA		COLUMBUS, OH		MEMPHIS, TN		RICHMOND, VA		OGDEN, UT		TOTAL ALL	
	Weight	Lines	Weight	Lines	Weight	Lines	Weight	Lines	Weight	Lines	Weight	Lines	Weight	Lines
NEW YORK, NY	7,487,215	190,367	835,411	17,883	1,754,991	79,133	2,688,487	71,426	4,947,481	88,583	667,186	20,887	18,380,611	475,119
DD MECHANICSBURG, PA	9,569,485	237,344	1,579,899	21,117	2,647,338	107,279	4,646,182	91,388	6,968,535	120,916	931,438	32,178	26,341,989	610,286
DD RICHMOND, VA	9,858,395	144,319	2,989,458	34,483	4,354,588	161,979	5,923,393	102,238	8,141,798	155,846	1,978,835	61,368	32,438,379	659,433
JACKSONVILLE, FL	2,837,137	34,446	1,123,118	17,473	1,159,875	35,581	4,454,165	111,684	3,834,197	72,264	721,476	27,228	12,529,968	298,588
DD MEMPHIS, TN	6,832,391	185,499	2,982,348	45,242	2,989,417	96,584	19,147,394	446,946	6,278,441	161,468	2,218,517	65,136	39,568,588	920,795
DD COLUMBUS, OH	3,412,412	98,362	688,322	15,279	2,751,274	138,785	4,552,778	99,467	2,614,883	68,218	677,786	20,523	14,688,575	424,634
DALLAS,TX	3,748,716	65,858	3,435,647	58,193	1,883,872	67,628	13,441,582	314,881	2,426,889	68,186	5,394,543	171,813	38,249,569	737,863
CHICAGO, IL	1,882,384	58,963	1,88[illegible],854	19,331	2,335,612	102,652	7,115,663	172,814	1,645,282	28,717	2,317,479	52,684	16,388,274	426,361
DD OGDEN, UT	1,593,854	29,274	6,318,714	138,815	744,928	28,321	4,837,362	183,653	858,347	26,854	6,171,568	144,882	19,715,965	462,919
LOS ANGELES, CA	1,834,538	28,934	13,962,238	351,133	1,247,511	39,279	3,647,219	85,659	2,416,662	41,646	9,229,694	172,335	32,337,854	718,986
DD TRACY, CA	1,243,987	21,389	6,728,881	167,848	581,479	15,587	1,835,417	58,688	928,867	23,627	4,854,387	188,864	16,884,138	387,187
TOTAL ALL SITES	47,899,634	1,886,467	41,550,994	879,189	22,289,989	872,648	71,489,562	1,649,868	48,258,814	839,445	35,146,749	876,122	258,547,742	6,121,931

Figure 10. REGIONAL MAP

New York, NY EDDS Distribution Area

Outbound Depot LTL Shipments

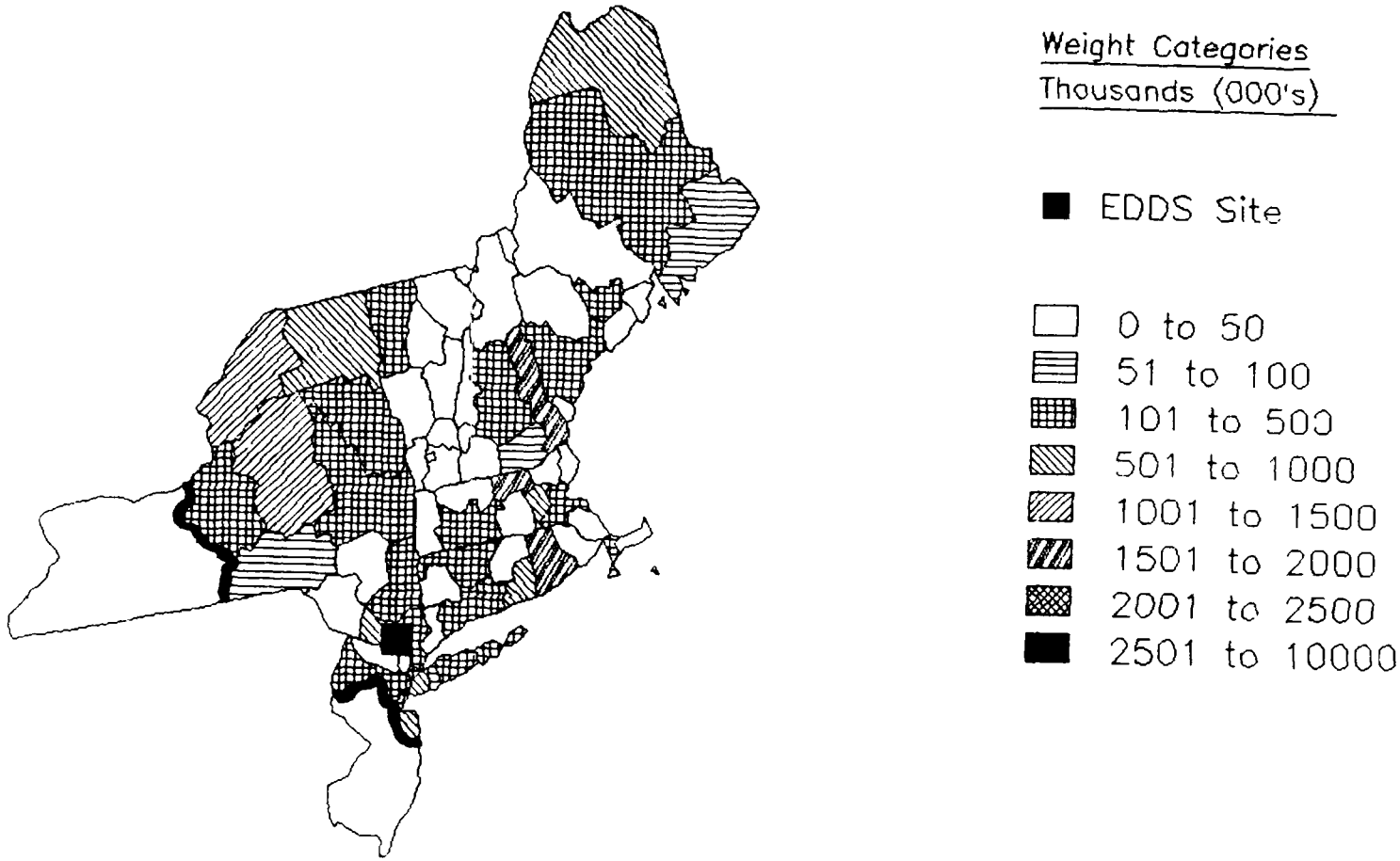

Figure 11. REGIONAL SUMMARY

SHIPMENTS BY SITE TO 3-DIGIT ZIP (NEW YORK) FY-1987
REGIONAL SUMMARY

WEIGHT GROUP	WEIGHT GROUP	NO. SHPTS	TOTAL WEIGHT	NUMBER LINES	AVERAGE SHPT SIZE
LTL	0 TO 99	16,496	415,561	34,626	25
	100 TO 199	2,889	409,349	14,956	142
	200 TO 499	3,454	1,114,880	27,514	323
	500 TO 999	2,283	1,616,425	28,072	708
	1000 TO 1999	1,690	2,380,543	31,430	1,409
	2000 TO 2999	804	1,962,968	20,526	2,442
	3000 TO 4999	768	2,936,717	26,794	3,824
	5000 TO 9999	695	4,905,912	33,491	7,059
MODE TOTAL		29,079	15,742,355	217,409	
VOL	10000 TO 14999	143	1,685,936	11,664	11,790
	15000 TO 19999	23	390,860	2,249	16,994
	20000 TO 29999	11	238,520	1,076	21,684
MODE TOTAL		177	2,315,316	14,989	
TOTAL		29,256	18,057,671	232,398	

Figure 12. SECTIONAL ZIP DETAIL

SHIPMENTS BY SITE TO 3-DIGIT ZIP (NEW YORK) FY-1987

DESTINATION ZIP	WEIGHT GROUP	WEIGHT GROUP	NO. SHPTS	TOTAL WEIGHT	NUMBER LINES	AVERAGE WEIGHT
109	LTL	0 TO 99	81	2,635	189	31
		100 TO 199	28	4,127	201	147
		200 TO 499	37	11,686	308	316
		500 TO 999	46	32,414	712	705
		1000 TO 1999	44	62,201	1,121	1,414
		2000 TO 2999	41	97,020	1,232	2,366
		3000 TO 4999	38	146,089	1,253	3,844
		5000 TO 9999	29	201,223	986	6,939
	GROUP TOTAL:		347	557,395	6,002	
	VOL	10000 TO 14999	4	42,622	141	10,656
		15000 TO 19999	2	31,294	125	15,647
		20000 TO 29999	1	20,958	120	20,958
	GROUP TOTAL:		7	94,874	386	
ZIP TTL:			354	652,269	6,388	

APPENDIX A

High Weight Destinations by Depot/DCR

Fiscal Year 1987

Defense Depot Ogden, UT

DCR	Location	Weight	No. Lines
88959C	NSC, San Diego, CA	3,365,311	8,509
746693	Fort Carson, CA	3,159,907	17,809
846177	Ft Lewis, WA	2,307,879	16,779
762720	Hill AFB, UT	2,127,919	20,560
84545A	NSC, Puget Sound, Bremerton, WA	1,895,089	9,966
585234	Fort Riley, KS	1,509,415	16,002
764535	Tooele Army Depot, Tooely, UT	1,413,309	10,568
669995	Fort Hood, TX	1,347,479	10,767

Defense Depot Memphis, TN

464630	Ft Benning, GA	4,729,666	20,327
66999A	Bell Tech Ops Corp, Ft Hood, TX	4,384,560	33,757
491365	NSC, Jacksonville, FL	4,041,174	17,649
572960	Ft Leonard Wood, MO	3,977,759	16,970
294424	Ft Knox, KY	3,828,843	14,920
687581	Lackland AFB, TX	3,329,317	11,774
637263	Ft Sill, OK	3,259,760	16,789
696844	Ft Bliss, TX	3,107,171	14,862
687580	Kelly AFB, TX	2,738,545	19,089
298790	Ft Campbell, KY	2,465,028	10,434
494988	NAS, Pensacola, FL	2,438,211	12,245
687450	Ft Sam Houston, TX	2,346,136	10,014
471966	Anniston AD, Anniston, AL	2,314,118	14,940
382161	NTC, Great Lakes, IL	2,237,880	6,922
656972	Ft Polk, LA	2,201,702	10,646
461610	Ft Stewart, GA	2,141,895	19,272
585234	Ft Riley, KS	2,135,243	12,988
494750	Eglin AFB, FL	2,125,727	12,672
689130	NAS, Corpus Christi, TX	1,989,178	18,002
47757A	Ft Rucker, AL	1,979,264	16,134
488860	Keesler AFB, MS	1,823,399	10,912
471965	Ft McClellan, AL	1,718,709	9,081
496174	Patrick AFB, FL	1,596,843	12,383
746693	Ft Carson, CO	1,552,247	11,959
407737	Ft Bragg, NC	1,392,968	8,942
447845	NSC, Charleston, SC	1,310,680	5,211

Defense Depot Tracy,CA

88959C	NSC San Diego Annex, Natl City, CA	6,210,941	14,398
84545A	NSC, Bremerton, WA	3,255,923	12,988
88900D	NSC, San Diego, CA	2,570,234	15,716
879743	Ft Ord, CA	2,403,319	17,290
846177	Ft. Lewis, WA	2,400,836	13,927
874422	McClellen AFB, CA	2,267,514	19,220
889513	Camp Pendleton, CA	1,987,691	11,269
874770	Travis AFB, CA	1,647,839	11,038
762720	Hill AFB, UT	1,437,294	11,157
88018D	Ft Irwin, CA	1,419,711	8,535
884169	Port Hueneme, CA	1,380,510	5,596

Defense Depot Mechanicsburg, PA

197234	Ft Dix, NJ	3,628,171	7,170
26100L	NSC, Norfolk, VA	3,560,117	10,732
207840	Navy Yard, Phila, PA	2,602,547	7,032
407737	Ft Bragg, NC	2,263,222	12,817
447845	NSC, Charleston, SC	1,999,249	7,993
405966	Camp Lejeune, NC	1,859,765	10,447
23741G	Con Prop Acct, WRAMC	1,582,943	4,420
165249	Sub Base, Groton, CT	1,568,307	6,890
18110B	Ft Drum, Watertown, NY	1,389,703	6,193

Defense Depot Columbus, OH

382161	Naval Tng, Great Lakes, IL	1,417,225	4,556

Defense Depot Richmond, VA

26100L	NSC, Norfolk, VA	5,687,985	21,850
447845	NSC, Charleston, SC	3,692,503	14,701
407737	Ft Bragg, NC	3,637,343	17,268
405530	Marine Corp, Cherry Pt, NC	2,407,661	12,577
445471	Ft Jackson, SC	1,805,599	3,294
461610	Ft Stewart, GA	1,744,833	9,347
496431	NTC, Orlando, FL	1,568,805	4,208
405966	Camp Lejeune, NC	1,421,834	6,071
44968C	Parris Island, SC	1,334,800	3,466

APPENDIX B

Pooling Cost Analysis Detail

TOTAL CONSOLIDATION SYSTEM COST ANALYSIS

	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
**********							
TOTAL DIRECT DELIVERY COST ESTIMATE							
**********							
Total Wgt	47,899,634	41,550,994	22,289,989	71,409,562	40,250,814	35,146,749	258,547,742
Total Shpts	870,095	738,711	806,115	1,419,564	755,751	806,670	5,396,906
Total Cost	$7,219,940	$7,059,263	$4,399,538	$11,117,018	$5,862,807	$6,081,224	$41,739,790
**********							

POOLING COSTS **********	FACTOR	WEIGHT	SHIPMENT COUNT	COST VIA POOLING	DIRECT COST	DIRECT COST - POOLING COST
New York, NY	1.35	18,300,611	425,595	$1,772,808	$3,079,575	$1,306,767
Mechanicsburg, PA	1.35	26,341,909	543,532	$2,221,472	$3,653,732	$1,432,260
Richmond, VA	1.35	32,438,379	574,236	$2,462,862	$4,478,522	$2,015,660
Memphis, TN	1.35	39,560,500	808,158	$3,808,009	$5,970,348	$2,162,339
Columbus, OH	1.35	14,688,575	386,298	$1,345,964	$2,335,801	$989,837
Dallas, TX	1.35	30,249,569	645,944	$3,097,215	$5,465,682	$2,368,467
Chicago, IL	1.35	16,300,274	382,616	$1,996,833	$3,070,281	$1,073,448
Ogden, UT	1.35	19,715,965	405,212	$2,545,453	$3,678,761	$1,133,308
Los Angeles, CA	1.35	32,337,854	622,253	$2,715,027	$5,231,686	$2,516,659
Tracy, CA	1.35	16,084,138	339,405	$1,986,764	$2,561,967	$575,203
Jacksonville, FL	1.35	12,529,968	263,657	$851,596	$2,213,435	$1,361,839
TOTAL		258,547,742	5,396,906	$24,804,002	$41,739,790	$16,935,788

********** TOTAL SAVINGS **********

Direct - Pooled $16,935,788

****

DEST POINT: New York, NY

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	7,487,215	835,411	1,754,991	2,608,487	4,947,401	667,106	18,300,611
Total Shpts	172,364	15,710	73,799	64,719	79,580	19,423	425,595
Total Cost	$961,565	$288,030	$369,994	$593,531	$661,376	$205,079	$3,079,575
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	7,487,215	835,411	1,754,991	2,608,487	4,947,401	667,106	18,300,611
Total Shpts	172,364	15,710	73,799	64,719	79,580	19,423	425,595
Total Cost	$79,331	$65,393	$46,060	$84,546	$69,248	$41,115	$385,693
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$101,077	$11,278	$23,692	$35,215	$66,790	$9,006	$247,058
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight						18,300,611	
Total Shpts						28,540	
Total Cost						$1,140,057	$1,140,057
TOTAL POOLING COST ESTIMATE							$1,772,808

****

COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $1,306,767 () - Loss

EDDS POINT: Mechanicsburg, PA

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	9,569,405	1,579,099	2,647,330	4,646,102	6,968,535	931,438	26,341,909
Total Shpts	206,693	18,800	99,734	80,338	107,097	30,870	543,532
Total Cost	$950,201	$449,972	$461,301	$800,549	$714,082	$277,627	$3,653,732
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	9,569,405	1,579,099	2,647,330	4,646,102	6,968,535	931,438	26,341,909
Total Shpts	206,693	18,800	99,734	80,338	107,097	30,870	543,532
Total Cost	$97,441	$116,145	$45,460	$150,731	$83,209	$53,870	$546,856
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$129,187	$21,318	$35,739	$62,722	$94,075	$12,574	$355,616
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight	26,341,909						
Total Count	30,204						
Total Cost	$1,319,000						$1,319,000
TOTAL POOLING COST ESTIMATE							$1,221,472

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $1,432,260 () - Loss

EDDS POINT: Richmond, VA

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	9,058,395	2,989,458	4,354,508	5,923,393	8,141,790	1,970,835	32,438,379
Total Shpts	118,791	28,430	146,921	88,539	134,334	57,221	574,236
Total Cost	$946,162	$784,381	$740,675	$866,440	$621,342	$519,522	$4,478,522
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	9,058,395	2,989,458	4,354,508	5,923,393	8,141,790	1,970,835	32,438,379
Total Shpts	118,791	28,430	146,921	88,539	134,334	57,221	574,236
Total Cost	$106,811	$227,803	$93,035	$192,223	$83,947	$115,344	$819,167
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$122,288	$40,358	$58,786	$79,966	$109,914	$26,606	$437,918
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight	32,438,379						
Total Count	26,653						
Total Cost	$1,205,781	$1,205,781					
TOTAL POOLING COST ESTIMATE							$2,462,862

COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation	$2,015,660	() - Loss

EDDS POINT: Memphis, TN

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	6,032,391	2,902,340	2,989,417	19,147,394	6,278,441	2,210,517	39,560,500
Total Shpts	90,752	39,485	88,529	379,288	148,304	61,800	808,158
Total Cost	$997,403	$768,771	$559,453	$2,077,536	$1,019,171	$548,014	$5,970,348
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	6,032,391	2,902,340	2,989,417	19,147,394	6,278,441	2,210,517	39,560,500
Total Shpts	90,752	39,485	88,529	379,288	148,304	61,800	808,158
Total Cost	$164,256	$160,158	$68,300	$229,758	$149,133	$114,750	$886,355
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$81,437	$39,182	$40,357	$258,490	$84,759	$29,842	$534,067
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight				39,560,500			
Total Count				51,343			
Total Cost				$2,387,587			$2,387,587
TOTAL POOLING COST ESTIMATE							$2,808,009

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $2,162,339 () - Loss

EDDS POINT: Columbus, OH

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	3,412,412	680,322	2,751,274	4,552,778	2,614,083	677,706	14,688,575
Total Snpts	90,664	14,022	128,453	87,264	56,015	19,880	386,298
Total Cost	$517,892	$206,870	$411,140	$636,673	$397,001	$166,225	$2,735,801
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	3,412,412	680,322	2,751,274	4,552,778	2,614,083	677,706	14,688,575
Total Shpts	80,664	14,022	128,453	87,264	56,015	19,880	386,298
Total Cost	$35,554	$45,000	$28,281	$94,345	$33,391	$36,592	$273,167
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$46,068	$9,184	$37,142	$61,463	$35,290	$9,149	$198,296
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight	14,688,575						
Total Count	29,510						
Total Cost	$874,505						$874,505
TOTAL POOLING COST ESTIMATE							$1,745,964

COST ANALYSIS

COST DIFFERENCE		
Direct - Consolidation	$989,837	() - Loss

EDDS POINT: Dallas, TX

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	3,748,716	3,435,647	1,803,072	13,441,582	2,426,009	5,394,543	30,249,569
Total Shpts	55,163	50,187	62,256	266,349	55,522	156,467	645,944
Total Cost	$809,355	$728,508	$421,237	$1,946,677	$552,914	$1,006,991	$5,465,682
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	3,748,716	3,435,647	1,803,072	13,441,582	2,426,009	5,394,543	30,249,569
Total Shpts	55,163	50,187	62,256	266,349	55,522	156,467	645,944
Total Cost	$178,071	$160,491	$60,660	$260,990	$105,441	$261,613	$1,027,266
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$50,608	$46,381	$24,341	$181,461	$32,751	$72,826	$408,369
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight	30,249,569						
Total Count	34,727						
Total Cost	$1,661,580						$1,661,580
TOTAL POOLING COST ESTIMATE							$3,097,215

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $2,368,467 () - Loss

EDDS POINT: Chicago, IL

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	1,882,384	1,003,854	2,335,612	7,115,663	1,645,282	2,317,479	16,300,274
Total Shpts	45,685	17,393	95,857	148,453	26,353	48,875	382,616
Total Cost	$381,386	$251,924	$480,716	$1,257,418	$292,965	$405,872	$3,070,281
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	1,882,384	1,003,854	2,335,612	7,115,663	1,645,282	2,317,479	16,300,274
Total Shpts	45,685	17,393	95,857	148,453	26,353	48,875	382,616
Total Cost	$32,942	$59,410	$37,001	$134,337	$34,893	$109,751	$408,334
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$25,412	$13,552	$31,531	$96,061	$22,211	$31,286	$220,054
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight				16,300,274			
Total Count				31,119			
Total Cost				$1,368,445			$1,368,445
TOTAL POOLING COST ESTIMATE							$1,996,833

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $1,073,448 () - Loss

EDDS POINT: Ogden, UT

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	1,593,054	6,318,714	744,920	4,037,362	850,347	6,171,568	19,715,965
Total Shpts	25,932	108,603	26,559	88,681	25,499	129,938	405,212
Total Cost	$435,971	$1,013,394	$219,699	$885,544	$264,583	$859,570	$3,678,761
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	1,593,054	6,318,714	744,920	4,037,362	850,347	6,171,568	19,715,965
Total Shpts	25,932	108,603	26,559	88,681	25,499	129,938	405,212
Total Cost	$102,285	$182,289	$39,358	$198,619	$55,186	$55,439	$633,176
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$21,506	$85,303	$10,056	$54,504	$11,480	$83,316	$266,166
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight						19,715,965	
Total Count						25,302	
Total Cost						$1,646,111	$1,646,111
TOTAL POOLING COST ESTIMATE							$2,545,453

COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $1,133,308 () - Loss

EDDS POINT: Los Angeles, CA

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	1,834,538	13,962,230	1,247,511	3,647,219	2,416,662	9,229,694	32,337,854
Total Shpts	25,394	291,639	36,456	75,554	36,603	156,607	622,253
Total Cost	$533,815	$1,658,320	$359,739	$872,039	$607,291	$1,200,482	$5,231,686
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	1,834,538	13,962,230	1,247,511	3,647,219	2,416,662	9,229,694	32,337,854
Total Shpts	25,394	291,639	36,456	75,554	36,603	156,607	622,253
Total Cost	$144,442	$145,668	$67,195	$235,696	$191,335	$249,847	$1,034,187
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$24,766	$188,490	$16,841	$49,237	$32,625	$124,601	$436,561
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight						32,337,854	
Total Count						21,416	
Total Cost						$1,244,283	$1,244,283
TOTAL POOLING COST ESTIMATE							$2,715,027

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation $2,516,659 () - Loss

ECCS POINT: Tracy, CA

	ORIGIN DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	1,243,987	6,720,801	501,479	1,835,417	928,067	4,854,387	16,084,138
Total Shpts	18,793	139,311	14,845	45,170	21,577	99,709	339,405
Total Cost	$368,209	$584,325	$154,065	$508,362	$274,038	$672,968	$2,561,967
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	1,243,987	6,720,801	501,479	1,835,417	928,067	4,854,387	16,084,138
Total Shpts	18,793	139,311	14,845	45,170	21,577	99,709	339,405
Total Cost	$103,237	$44,894	$28,972	$125,395	$79,717	$131,292	$513,507
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$16,794	$90,731	$6,770	$24,778	$12,529	$65,534	$217,136
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight						16,084,138	
Total Count						64,246	
Total Cost						$1,256,121	$1,256,121
TOTAL POOLING COST ESTIMATE							$1,986,764

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COST ANALYSIS

COST DIFFERENCE		
Direct - Consolidation	$575,203	() - Loss

EDDS POINT: Jacksonville, FL

	DESTINATION DEPOT						
	Mechanicsburg	Tracy	Columbus	Memphis	Richmond	Ogden	TOTAL ALL DEPOTS
********** DIRECT DELIVERY COST ESTIMATE **********							
Total Wgt	2,037,137	1,123,118	1,159,875	4,454,165	3,034,197	721,476	12,529,968
Total Shpts	29,864	15,131	32,706	95,209	64,867	25,880	263,657
Total Cost	$317,981	$324,768	$221,519	$672,249	$458,044	$218,874	$2,213,435
********** POOLING COSTS **********							
INBOUND COST ESTIMATE							
Total Wgt	2,037,137	1,123,118	1,159,875	4,454,165	3,034,197	721,476	12,529,968
Total Shpts	29,864	15,131	32,706	95,209	64,867	25,880	263,657
Total Cost	$49,474	$61,976	$36,673	$71,314	$52,968	$50,363	$322,768
POOLING COST ESTIMATE							
Factor per CWT							
1.35	$27,501	$15,162	$15,658	$60,131	$40,962	$9,740	$169,155
OUTBOUND COST ESTIMATE							
All Depots Pooled to Destination							
Total Weight						12,529,968	
Total Count						14,231	
Total Cost						$359,673	$359,673
TOTAL POOLING COST ESTIMATE							$851,596

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COST ANALYSIS

COST DIFFERENCE

Direct - Consolidation	$1,361,839	() - Loss

APPENDIX C

Present Value Analysis of Savings

Under EDDS "Pooling" Concept

PRESENT VALUE ANALYSIS OF SAVINGS
UNDER EDDS "POOLING" CONCEPT

IN MILLIONS (000,000)

YEAR	EST. YEARLY COST #	EST. YEARLY SAVINGS	NET EST YEARLY SAVINGS	10 % MID-YEAR DISCOUNT	DISCOUNTED SAVINGS
1989	$1.5 *	$8.7 +	$7.2	0.000	$7.2
1990	8.5 **	14.9 ++	6.4	0.954	6.1
1991	2.5 ***	16.9	14.4	0.867	12.5
1992	1.0	16.9	15.9	0.788	12.5
1993	1.0	16.9	15.9	0.717	11.4
1994	1.0	16.9	15.9	0.652	10.4
1995	1.0	16.9	15.9	0.592	9.4
1996	1.0	16.9	15.9	0.538	8.6
1997	1.0	16.9	15.9	0.489	7.8
1998	1.0	16.9	15.9	0.445	7.1
1999	1.0	16.9	15.9	0.405	6.4
2000	1.0	16.9	15.9	0.368	5.9
2001	1.0	16.9	15.9	0.334	5.3
		ESTIMATED TOTAL 12 YEAR SAVINGS			$110.5

***** NOTES *****

\# Yearly costs include the cost of operation of the EDDS Support Office. This is estimated to be approximately 10 people at $50,000 each and a yearly travel budget of $500,000, making the yearly total operating expense $1,000,000.

* $.5 million estimated cost to develop software to implement EDDS.

** Estimated cost to modernize five depot freight terminals at $1.5 million per depot.

*** Estimated cost to modernize one depot freight terminal at $1.5 million.

\+ Savings prorated based on five commercial sites coming online.

++ Savings prorated based on five commercial sites and five depots online.